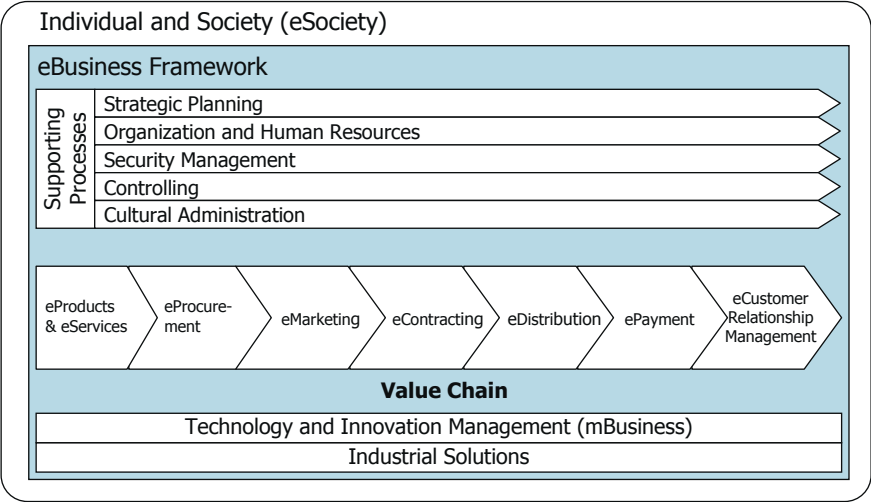


1 eBusiness Framework



This introductory chapter clarifies terms, presents fundamental concepts of Internet economics, and provides an overview of the chapters. Section 1.1 explains the various electronic business connections encountered in eBusiness, eCommerce, and eGovernment. In Sect. 1.2, case studies illustrate some of the options for electronic business; applications include eShopping, eHealth, eVoting, and eCollaboration. Section 1.3 states the most important arguments for Internet economics and gives a long-range overview of the structural changes in this sector. Section 1.4 describes the digital value chain, defining relevant terms and using examples, and it provides an overview of the chapters based on this explanation. Literary references follow in Sect. 1.5.

1.1 Defining Electronic Business

*Emergence of
the
information
society*

The evolution of the information society is often compared to the Industrial Revolution in terms of its consequences. The use of information and communication technologies provides the opportunity to extend the abilities of individuals and organizations to act, to reinforce cross-border contacts, and to develop an open society with cultural originality and variety.

Due to technological changes and economic development, the information factor has become more significant than the production factor. Many companies and organizations have moved their business processes onto the Web and realized customer relationships with the help of electronic means of information and communication, leading to the term electronic business.

*What does
electronic
business mean?*

Electronic business means initiating, arranging, and carrying out electronic business processes; in other words, exchanging services with the help of public or private communication networks, including the Internet, in order to achieve added value. Companies (business), public institutions (administration), as well as private persons (consumer) can be both service providers and service consumers. What is important is that the electronic business relationship generates added value, which may take the form of either a monetary or an intangible contribution.

Figure 1.1 shows the three most important groups of market participants, along with their possible business connections. Each of these participants can appear as a provider or consumer of services. Thus, nine basic business relationships develop in total.

*The two
business
options for
electronic
commerce*

In business-to-consumer (B2C) and business-to-business (B2B) service exchange relationships, companies offer products and services for customers or other companies. These are therefore the two options for electronic trading (electronic commerce or eCommerce). An example of B2C is an electronic shop (see Sect. 1.2.1 on electronic shops and the case study of the startup company eDVDShop). A supplier relationship between companies provides an example of B2B.

*Defining
electronic
government*

A further subset of exchange relationships are termed electronic government (eGovernment), namely the options A2A, A2B, and A2C. Administration-to-administration means the use of information and communication technologies by local government to electronically organize internal administrative channels. This can take place within a single level of administration (see the virtual community in Fig. 1.1), or between different levels of administration. In addition, officials can make offers to citizens (option A2C, where C means “Citizen”) or to companies (A2B). Electronic votes and elections, examples of A2C, are explained in more detail in Sect. 1.2.3.

The letter A stands for administration and concerns not only government but also nongovernmental organizations (NGOs), such as nonprofit organizations (NPOs).

		Service Consumer		
		Consumer	Business	Administration
Service Provider	Consumer	Consumer-to-Consumer (C2C) e.g., classified ad on a personal homepage	Consumer-to-Business (C2B) e.g., web page with personal ability profile	Consumer/Citizen-to-Administration (C2A) e.g., citizen evaluates public environment project
	Business	Business-to-Consumer (B2C) e.g., products and services in one eShop	Business-to-Business (B2B) e.g., order with suppliers (supply chain)	Business-to-Administration (B2A) e.g., electronic services for public administration
	Administration	Administration-to-Consumer/Citizen (A2C) e.g., possibility of electronic elections	Administration-to-Business (A2B) e.g., public advertisement of project plans	Administration-to-Administration (A2A) e.g., forms of cooperation in virtual communities

Fig. 1.1: Various electronic business relationships

The letter C stands for consumer or citizen. It is important to note that people can also appear as providers in the service provider and service consumer matrix. For example, option C2C refers to an electronic business relationship between individuals (see the case study in Sect.1.2.4). Moreover, consumers or citizens can provide services for companies (C2B) or for administrative units (C2A).

The term mobile business (mBusiness) can be considered a subset of electronic business, since here the exchange relationship between market participants takes place over mobile networks and devices. Mobile business supports the possibility of conducting electronic relationships and business independent of location and time (see Chap.9).

Due to the diverse business relationships associated with electronic and mobile business, a market participant can take on a variety of roles. This promotes the market and exchange relationships in the so-called multioption society, which is illustrated by case studies in the next subchapter and discussed in greater depth in Chap.10.

Mobile business as a subset of electronic business

Multioption society

1.2 Case Studies on Electronic Business

1.2.1 Electronic Shop (B2C)

There are a multitude of electronic shop systems in the electronic market. This spectrum ranges from free software packages (open source) to extensive and expensive standard products which can cost several hundreds of thousands of Euros.

*Main functions
of a webshop*

An electronic shop (also often called a webshop or an online shop) is a Web-based software system that offers goods and services, generates bids/offers, accepts orders, and handles delivery and modes of payment.

*Interaction of
the storefront
with the
backfront*

Figure 1.2 shows a rough outline of an electronic shop based on the product eSarine. In principle, any webshop consists of a storefront and a backfront. The online customers only have access to the storefront and can seek information on products and services, order them as needed, pay and receive them. Access to the backfront is exclusively reserved for the shop operator. Here products and services are inserted into the product catalog and the various procedures employed for ordering, paying, and purchasing are stipulated. The most important functions of an electronic shop are now discussed using Fig. 1.2.

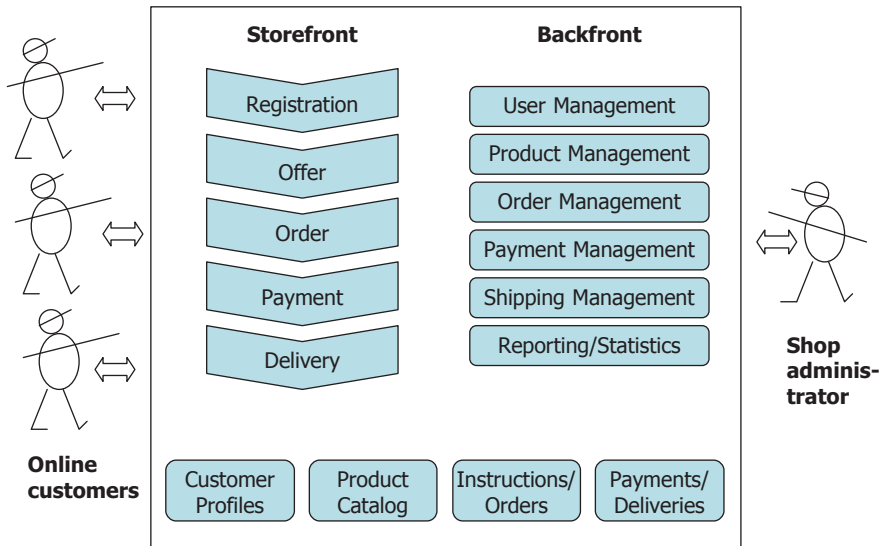


Fig. 1.2: Rough architecture of the electronic shop eSarine

*Registering
user profiles*

Registration of online customers. A visitor to the electronic shop can find out about the products and services offered by it. Intending to buy, he communicates a minimum amount of data about himself and establishes a user profile, along with payment and delivery arrangements.

Customer profiles and customer administration. The data on the customer is put into a database. Moreover, an attempt is made to construct specific profiles based on customer behavior. Thus, the most appropriate offers can be presented to each customer. However, the communication and information rules requested by the user must be considered and respected (see behavior with the customized push of online advertising in Sect. 4.4).

Appropriate offers based on customer profiles

Product catalog with catalog listing. Products and services are recorded in the product catalog, with or without quoted prices. Depending upon the discount system selected and individual customer price fixing (Sect. 2.5), a quoted price is computed and specified only when creating the offer. The individual products are summarized in categories so that the organization of the webshop is clear (see explanations of catalog management in Sect. 3.4).

Maintaining a product catalog

Offering and ordering. Using this software component, offers can be generated and goods and services can be bought as needed. The electronic shopping basket or shopping cart is used by the user to reserve the goods and services selected for possible purchase, and if necessary to show the total price with any discount.

Electronic shopping basket

Modes of payment. If the customer is satisfied with his order and the associated price and delivery arrangements, then he can activate the purchase with the order button. Depending on the payment system (see the different modes of payment in Chap. 7), either a payment process is triggered (e.g., an invoice is rendered) or the payment is credited directly (e.g., payment with credit card and Payment Gateway).

ePayment options

Shipment options. Depending on the category of the product and the offer provided by the shop operator, it may be possible to obtain goods and services in a digital form. In this case, a download is necessary, which demands varying amounts of time depending on the computer equipment involved and the Internet connection with the customer. The advantages and disadvantages of online and offline distribution are discussed in Chap. 6, which also presents hybrid distribution systems.

Offline vs. online distribution

Measures of customer connection. Customer contact is maintained after a purchase by offering important after-sales information and services. These measures make customer contact possible through the goods and services and enhance the customer connection. In eCustomer relationship management (Chap. 8), an attempt is made to maintain a customer relationship and connection by electronic means throughout the lifetime of the customer.

Lifelong customer connection

The construction and operation of an electronic shop must be planned and prepared in detail. In addition, important decisions must be made. Which of the products and services should be offered online? Does the electronic shop need to be offered in several languages, and if so, which languages are preferred? Are there differences in the arrangements for supply, payment, and conclusion compared

Organizational issues for electronic shops

to a conventional business model, and how can the differences be justified and communicated if necessary? Are customers with enhanced customer value (see Sect. 8.2) treated preferentially, and if so, how? How can interested customers and potential customers be integrated into the value chain?

Shopping mall

The operator of an electronic shop can become involved in a shopping mall. A shopping mall (or an electronic department store) is an Internet platform that allows various providers to present their products and services together. This allows the customer to perform all of their shopping in one “mall.”

Case Study eDVDShop: Business Idea for an eShop

Marcel Anderson is the managing director of a small shop which sells movies on DVD (Digital Versatile Disc). In order to offer his products on the Internet too, Anderson plans to set up his own web page. This should present the range of products offered (which at present includes DVDs as well as older video cassettes and various promotional material, like movie posters) and allow the customer to order the product (by sending an email to Anderson). Anderson finds a reasonable Internet provider that is prepared to host the pages. Through this provider, Anderson registers the domain name `http://www.edvdshop.ch`. He begins to describe the products in HTML format. At the same time he produces a simple Web page:

```
<html>
<head>
<title>eDVDShop</title>
</head>
<body>
<h1>Welcome to the eDVDShop</h1>
Please take a look at our offer. If you are interested in
a product, send an e-Mail to
<a href= "mailto:anderson@edvdshop.ch">anderson@edvdshop.ch</a>.
</h1>offer</h1>
<table>
<tr><td>name of DVD</td><td>description</td><td>price</td></tr>
<tr><td>Mystic River</td><td>Released in 2003, the movie
Mystic River directed by Clint Eastwood is based upon a
book by Dennis Lehane.</td><td>22.90</td></tr>
<tr><td>Mississippi Mermaid</td><td>A good film by F. Truffaut with
J.-P. Belmondo and C. Deneuve.</td><td>22.90</td></tr>
<tr><td>25 Hours</td><td>S. Lee shot this movie in which E. Norton
plays the main role.</td><td>27.90</td></tr>
</table>
</body>
</html>
```

This web page presents itself in a web browser in the following way:

Welcome to the eDVDShop

Please take a look at our offer. If you are interested in a product, send an e-Mail to anderson@edvdshop.ch.

offer

name of DVD	description	price
Mystic River	Released in 2003, the movie Mystic River directed by Clint Eastwood is based upon a book by Dennis Lehane.	22.90
Mississippi Mermaid	A good film by F. Truffaut with J.-P. Belmondo and C. Deneuve.	22.90
25 Hours	S. Lee shot this movie in which E. Norton plays the main role.	27.90

After a short time Anderson realizes that this solution is not optimal. He can make out the following problems:

- The page does not look professional. In order to improve the appearance of the page, Anderson must either extend his work in HTML or make use of a tool that can automatically produce web pages.
- There is no search function. Although Anderson has divided his products into several categories, it is difficult to search for a particular product.
- The statement that asks customers to send emails to the eDVDShop is not optimal for customers since information on shipping, shipping costs, and payment options is missing.

In order to improve the present solution, Anderson decides to employ an on-line shop. After scouting out several providers of online shop systems, he decides to use the online shop eSarine, which is offered by the company eTorrent. eSarine provides a Web-based backfront through which the whole system can be administered.

1.2.2 Electronic Health Market (B2B)

Medical progress over the last few decades has led to a continuous rise in the efficiency of health care and in the life expectancy of the general population. This has resulted in, among other things, rising costs of health services. In many countries, these costs are increasing more rapidly than the consumer price index, which is why reforms are on the political agenda. According to Fig. 1.3, the health market is characterized by four groups of market participants:

- Care/service providers such as hospitals, physicians, pharmacies, and laboratories

*Cost explosion
in the health
market*

*Classification
of market
participants*

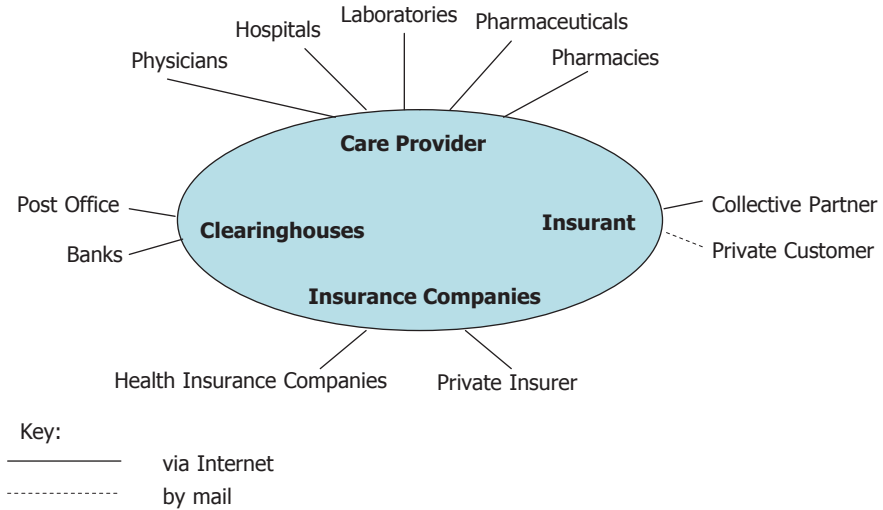


Fig. 1.3: Market participants in the electronic health market in Switzerland

- Insurers or health insurance companies
- Clearinghouses, such as banks and post offices
- Insurant (the insured party)

*Establishing an
electronic
health market*

The electronic business known as eHealth is worthwhile, particularly among care providers, between care providers and their suppliers (e.g., of pharmaceuticals), as well as between care providers and insurance companies. In Europe, billions of invoices per year are made out and conveyed predominantly by post to insurance companies, recorded manually or partly with optical scanning technology, and then paid. In the future, data exchange between care providers, clearinghouses, and insurance companies will take place electronically, as in the following example. If a hospital requires a cost assurance for a treatment case, then this is given automatically with sufficient coverage by the information system of the appropriate insurance company. After the treatment, the hospital makes out an electronic invoice to the insurance company; electronic data exchange formats based on XML (Extensible Markup Language) have been defined and published in Europe. The insurance company in turn subtracts the customary deductible from the patient with the appropriate software, and checks the invoice with a regulation-based software package. In addition, an electronic tariff database for medical services is applied. Afterwards, the necessary computer-aided payment streams are run through the customary clearinghouses such as banks or post offices via communication networks. Only the final statement is sent in paper form to the insurant, assuming that this person has no Internet connection or wishes to receive correspondence in paper form.

Another element (see report http://www.europa.eu.int/eur-lex/de/com/cnc/2003/com2003_0073de01.pdf) of the electronic health market is the electronic patient card (Patient Health Card), as proposed by the European Commission. This card contains the following administrative data:

Administrative data with the health card

- Insurance specifications, including modes of payment
- Authorization status in relation to treatment in foreign European countries (replaces the so-called E111 form)
- Paperless transmission option for medical prescriptions

Apart from these technical insurance elements, the Patient Health Card includes additional medical instructions/specifications:

Care-oriented health data

- Documentation of medications being taken
- Emergency information such as blood type, chronic organ disease, allergies, heart conditions, dialysis, or asthma
- Additional health information such as current diagnoses, operations, inoculations, or X-ray examinations
- Personal data provided by the patients themselves

The health card increases the quality and efficiency of health care. It ensures that health data is available in order to optimize patient treatment whenever it is needed. The Patient Health Card is designed to be secure; it is coded, with access and acquisition protection being ensured via electronic signature (see Sect. 5.3) and the corresponding trust center.

Secured access

In this example of the electronic health market, the various changes that participants in the business-to-business market must implement are evident: business processes must not only be analyzed and adapted internally, but connections to hospitals, pharmacies, laboratories, insurance companies, and financial institutions must be reconsidered and automated. This necessitates organizational rearrangements, adjustments to processes, and changes to employee job profiles.

1.2.3 Electronic Voting and Elections (A2C)

eGovernment refers to the electronic services and processes that occur within administrative units (A2A), between public institutions and companies (A2B), and between an administrative unit and the public (A2C). If the exchange relationships between an administrative unit and citizens are studied, then in accordance with Fig. 1.4, the different application types (eAssistance, eProduction, eDemocracy) can be broken down into various degrees of interaction (information, communication, transaction). The degree of interaction at the information stage includes the retrieval of information by citizens. At the communication stage, information is exchanged and inquiries are made to the administration. The

The path to eDemocracy

	eAssistance	eProduction	eDemocracy
Transaction	<ul style="list-style-type: none"> • electronic reservation of public areas • electronic orders 	<ul style="list-style-type: none"> • electronic tax declaration • registration • census 	<ul style="list-style-type: none"> • electronic elections (eElection) • electronic voting (eVoting)
Communication	<ul style="list-style-type: none"> • web services for inquiries • feedback 	<ul style="list-style-type: none"> • email • online forms • discussion forums • project announcements 	<ul style="list-style-type: none"> • discussion forums for elections and voting • notifications
Information	<ul style="list-style-type: none"> • announcements • rules of behavior • recommendations 	<ul style="list-style-type: none"> • procedure for official approval • instructions 	<ul style="list-style-type: none"> • legal principles • decrees

Fig. 1.4: Degrees of interaction and application types in A2C

transaction stage concerns the completion of electronic processes and services. eAssistance involves the electronic support of the citizen, whereas in eProduction the administrative workflow is carried out electronically. The demanding application type of eDemocracy involves electronic elections and voting.

eVoting requires the security of information systems and web platforms as well as a guarantee of data protection. Electronic voting systems must meet the following requirements:

- Only registered voters may submit a vote
- Each voter has exactly one vote
- Citizens do not have access to the electronic ballot box outside of the official opening times
- Third parties do not receive access to the contents of electronically submitted votes (guarantee of data protection)
- Electronically submitted votes cannot be intercepted, changed, or rerouted
- In the event of a system crash, no vote that has already been submitted may be lost

*Pilot for
electronic
voting*

In order to ensure the above security and protection conditions, procedures and special algorithms were developed (see the sections on electronic contracts and digital signatures in Chap. 5). Pilot attempts at eVoting could only be successfully accomplished after the legal basis for such business had been created. The following example illustrates this. In 2003, a total of 741 voters in the municipality of Anières near Geneva took part in a vote. 323 of these citizens (43.7%) voted electronically. The voter turnout for the conventional and electronic elections combined was about 63.77%. It is obviously important to take into account that in this field test the public was particularly motivated to either go to the ballot box or to try out the new electronic voting channel.

One challenge with eVoting and with further applications of eGovernment is the principle of equal treatment: all citizens of the state have the right to the same services, regardless of their social, intellectual, and technical access opportunities. In contrast to electronic business, public bodies do not have selection criteria and for the time being must provide workflow and services on paper as well as electronically.

Principle of equal treatment

1.2.4 Knowledge Exchange via Electronic Books (C2C)

Electronic books (eBooks) can be used to carry a large amount of information at any time. Possible uses range from electronic interpreters and travel guides to novels. Furthermore, it will soon be possible to use them to call up city plans, traffic directories, or information on sights worth seeing when needed through location-based services.

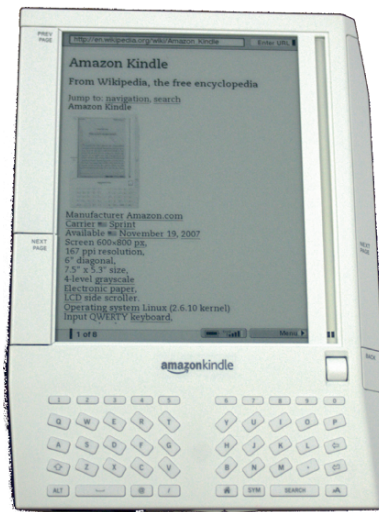


Fig. 1.5: The electronic book from the online merchant Amazon.com

As Fig. 1.5 illustrates, electronic books are portable computer devices with flat screens that are loaded with digital book content via communication interfaces (e.g., the open eBook specification based on HTML and XML, <http://www.openebook.org>), and this is classified, annotated, or prepared into a personal knowledge file by the user. In principle, any hyperdocument can be downloaded from the Internet and reused for personal use, perhaps upon the payment of a fee (ePayment in Chap. 7). Keyboards or additional input and output devices for the eBook can also be obtained (Chap. 9 on the use of mobile devices). It is a computer, cell phone, organizer and handheld joined together into one personal digital information agent.

Functional modes of electronic books

Lifelong learning

Electronic books or similar personal information agents can be used in a C2C mode to exchange know-how with professional colleagues or other people and to enrich the personal knowledge bank. This electronic knowledge bank is constantly expanded and updated during training periods and work activities; it supports lifelong learning (Chap. 10 on the information society).

An electronic book exhibits the following advantages over paper books:

- Electronic books can be updated at any time by calling up Internet services or by exchanging information with colleagues and information suppliers.
- The user of an electronic book can select his own typeface size and format. The electronic magnifying glass provided in the software for the eBook is a great help to older people. The ability to select the background color and brightness is another obvious benefit.
- The storage capacity of an electronic book is very large. One eBook can already save up to 1,000 digital books simultaneously (see EveryBook at <http://www.everybook.net>).
- An integrated dictionary, an index, and text search commands can aid the discovery of requested information.
- The content of the digital book can be extended into a personal knowledge bank. Summaries can be added, new classifications devised, and unimportant passages eliminated. Sophisticated retrieval functions help to keep things in order.
- The integration of text, pictures, and sound can transform the electronic book into a multimedia device. Economic or technical connections can be described more comprehensively through animation and simulation.

Use of digital watermarks

Many legal questions regarding electronic books are still unresolved and are curbing their distribution. Digital watermarks promise to improve copyright protection. The electronic watermark is directly embedded in the original file without detracting from the appearance of the original document (Sect. 6.5). Cost-effective copying and the rapid distribution of digital information objects are therefore controlled.

1.3 Arguments for Internet Economics

Information professions dominate

The change in sectoral structure—the gradual shift of employees from the area of agriculture to the production sector and then to services and to information processing—is well known. This evolution is depicted in Fig. 1.6 so that the growth of the service sector can be viewed more clearly. The information professions already clearly dominate over other occupational areas. More and more people are involved with the production, processing, and distribution of information. The search for qualified economic information scientists—not only in many European countries but also in the USA, Australia, and Japan—is an indication

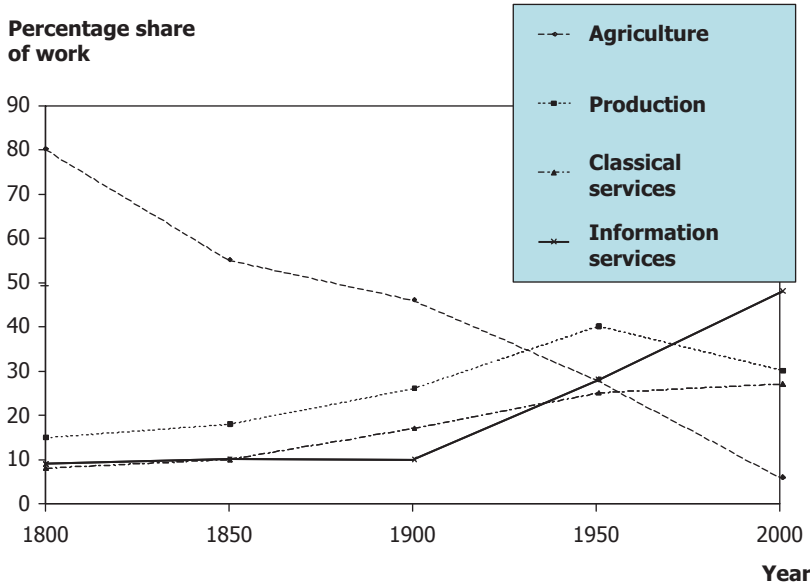


Fig. 1.6: Long-term view of the change in sectoral structure

of this evolution toward an information society. In a technical book on Internet economics by Zerdick et al. (see Sect. 1.5), economists bring forth arguments to counter the strategic challenges. The most important are as follows:

The creation of value is digitized. A change to the digital economy takes place, with the products and services becoming more and more digitized. Digital objects fundamentally differ from material economic goods because they can be easily copied and distributed. Their value grows through use; however, they may be poorly identified and protected.

*Digital
economic goods*

Critical mass as a key factor. Not scarcity but abundance determines the value of goods. A large customer base must be found in a short time in order to obtain the lead in the market. By achieving critical mass, standards can be set, an important condition for success. Only standards allow navigation in the network economy.

Cannibalizing yourself. Traditional distribution channels are placed in competition as digital products and services are offered and sold over the Web. The challenge, “cannibalize yourself, before others do it!” means that a company should align its marketing and sales to the electronic market. Thus, transaction costs remain low, a wider variety of more individual services develop, and attractiveness in the market rises.

*Usage of digital
distribution
channels*

Follow the free. Giving away partial products and partial services can be a recipe for success. Using an appropriate price strategy (see Sect. 2.5), components

are given away in order to achieve a critical mass. Proceeds are only obtained in a second step, when complementary services or more efficient supplementary programs are offered. The profitable cost structure for the production and distribution of digital products supports this strategy; however, this argument was weakened somewhat by the bursting of the dot-com bubble at the beginning of 2002.

Product differentiation through versioning. Content can be updated at minimal cost with digital products and services, easily altered, and presented anew. At the same time, such service packages can also be offered to the individual customer at favorable prices. The networking of specialized providers allows the customer-oriented intermediary to furnish differentiated and individual market services. With costs decreasing and offers differentiating, no opposition remains in the Internet economy (see individualization of the mass market and mass customization in Sects. 4.1 and 6.3).

Cooperation through value-creating networks. Core competency concentration requires both the construction of virtual networks and cooperation (see b-webs by Tapscott in Sect. 2.3). In this way, the strategic focus of a company becomes both narrower and broader: narrower due to the limitation of the particular competence, broader through the formation of alliances.

*Legal validity
of electronic
documents*

Apart from the challenges listed here, the authors of technical books on Internet economics draw attention to the fact that valid regulation models sometimes become obsolete, although a backlog in demand for new regulation content relating to electronic business exists. How then can electronic documents and legal contracts be explained? Some countries have done pioneering work in this area. Italy (with the Bassanini Law of 1997) and Germany (with the Information and Communication Services Law of 1997) rank as the first countries to have legally established an equivalency between a digital signature and a hand signature. Other countries are attempting to get onto this track; they are introducing and applying signature laws with appropriate electronic certificates.

1.4 Value Chain and Chapter Overview

*Meaning of the
digital value
chain (this
chapter)*

This book focuses on the members of the value chain and devotes a separate chapter to each member (see Fig. 1.7). The aim of this first chapter, on the framework associated with eBusiness, has been to explain and illustrate with meaningful examples the terms electronic business, electronic commerce, and electronic government. Apart from the discussion of economic challenges, important changes in the electronic marketplace are described (intermediation and disintermediation). The supporting processes of strategic planning, construction and development organization, technology and innovation management, and control/supervision are briefly mentioned in this book. Knowledge of these processes is assumed or must be obtained from the management literature. However, examples of applications from different branches of industry are discussed in detail in every chapter.

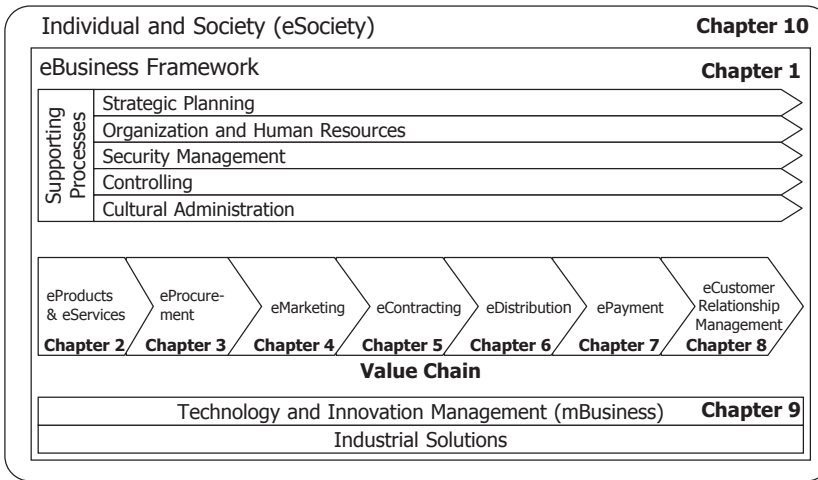


Fig. 1.7: Value chain and overview of the chapters in this book

When considering the organization of electronic products and services (Chap. 2) the point for the time being is to find a suitable form of cooperation (business web or b-web) with the help of a business model. Such forms of cooperation vary from open marketplaces with negotiable goods and value (business web of the agora type) realized over tightly organized hierarchical networks (aggregator, integrator, and distributor types) to self-organized and loosely coupled communities (alliance type). The question of the appropriate pricing of electronic products and services is important, since intangible goods are difficult to value. Along with options for price differentiation, the selection of either linear, nonlinear, or dynamic price formation must be considered. The question of price bundling also arises.

Chapter 3 is devoted to strategic and optional electronic procurement processes (eProcurement). In principle, there are a variety of eProcurement solutions depending on whether product catalogs and services for product selection and product procurement are made available on the customer side (buy side) or on the supplier side (sell side). In a third variant (electronic marketplace), a third party provides software solutions and catalogs for procurement. Thus product and service comparisons can be employed and valued. Catalog management constitutes a special challenge; appropriate classification criteria must be standardized across manufacturer and supplier boundaries.

eMarketing (online marketing) is presented in Chap. 4. Using electronic means of providing information and communicating, market potentials are tapped and business relations are cultivated. The division of online customers into categories allows for a diversified marketing process to be carried out and services to be adapted on the web site at any time. Appropriate key indicators allow the broadcasting of an online offer to be measured (online surfer), the degree of interaction to be calculated (online consumer), online customers to be stimulated

Organization of digital products and services (Chap. 2)

eProcurement (Chap. 3)

Customer model for online marketing (Chap. 4)

into creating value (online prosumer), business deals to be transacted (online buyer), and the connection to the customer to be maintained (online key customer). At the same time, the peculiarities of online advertising must be studied and analyzed.

*Documents
with digital
signatures
(Chap. 5)*

In Chap. 5, the concept of eContracting is dealt with. Here, an electronic contract is considered a legally valid document. To achieve this, trust centers must be set up that register actual people, issue digital certificates, and supply pairs of electronic keys for the digital signature. Asymmetric cryptography processes that use private and public keys are a basic requirement when using such certificates and signatures. Electronic documents can be coded on the one hand, and on the other, authentication can be performed with digital signatures. An electronic negotiation process therefore involves recording and managing the negotiating positions, agreeing on rights and obligations, completing legal contracts with digital signatures, and controlling the elements needed to supervise the execution of the contract.

*Distribution in
the electronic
market
(Chap. 6)*

Issues related to the distribution of a digital product or service are discussed in Chap. 6 on eDistribution. If the consumer of services has a mobile device with an Internet connection at his disposal, he can take advantage of the time-independent and location-independent purchase of services (online distribution). Electronic products do not necessarily have to be obtained online, since offline distribution also has advantages. Furthermore, hybrid distribution forms that combine online distribution with a variant of offline distribution can be envisaged. This can be useful when hybrid variants distribute large software packages for data carriers offline and offer release number changes or debugging services online. The distribution is just one part of a comprehensive supply chain. With the help of a reference model, the steps involved in planning, procurement, manufacture, and delivery must be coordinated.

*Methods of
electronic
payment
(Chap. 7)*

In Chap. 7, we deal with different means of electronic payment (ePayment). Such methods make it possible to pay small sums involving just a few cents (picopayment), medium sums of several Euros (micropayment), and larger amounts (macropayment). To ensure that the transaction costs for picopayments and micropayments are low enough to make them worthwhile, methods based on the use of electronic coins were developed. In addition to this, there are a number of account-based and owner-based procedures for electronic payments. In order to guarantee the security of electronic payment processes, cryptographic procedures and digital signatures must be used. Thus, the SET (secure electronic transaction) protocol requires that a dual signature procedure is employed so that both the order data (in relation to the dealer) and the modes of payment (in relation to the bank) are safeguarded.

*Management of
customer
relationships
and
communication
channels
(Chap. 8)*

Chapter 8 about eCustomer Relationship Management shows how the focus on product concerns shifts to customer management. Moreover, the customer's capital must be captured and valued in addition to the customary financial key indicators. The model of customer valuation by Blattberg et al. makes it possible to include steps in customer acquisition such as customer support and the customer relationship. Relevant facts are stored in the customer data warehouse,

which yields a complete analysis of customer behavior and customer use. Aside from analytical customer relationship management, the customer buying cycle (i.e., suggestion, evaluation, purchase, and use) supports all operations. Multi-channel management represents a special challenge, since the different customer communication channels must be evaluated and suitable for use.

Chapter 9 on mobile business illustrates the basic characteristics of mobile devices and the corresponding network architecture along with the most important communication protocols such as GSM (global system for mobile communication) and Bluetooth (shortwave radio technology for wireless communication). Applications for mobile devices must be aligned with the device's characteristics, since the size of the display is limited, the storage capacity in relation to PCs and workstations is small, and the bandwidth at the moment is still modest. In addition, the mobile devices have primitive input and output possibilities. For these reasons, methods such as a location-based service or personalization must be used. Mobile electronic payment procedures and mobile web sites are examples of such applications.

In the future, any market participant will be able to take care of business electronically at any time and any place on Earth (the "global village" concept). This will have consequences for the individual and for society, as summarized in Chap. 10. The primary risk is the "digital divide:" the separation of society into population groups according to who can establish a connection and those who remain excluded from the electronic markets. The anonymity of the Internet provides both opportunities and dangers; for example, if criminal or pathological factions form and then proceed to misuse cyberspace. On the other hand, the development of the information society allows the individual to act as an entrepreneur and to become involved in the electronic market through constellations such as C2A, C2B or C2C, and to offer services. At the same time, the entrepreneur can take on time-limited jobs as an employee or knowledge worker and support him- or herself through several job relationships. Multioption companies only function well, however, when the different forms of cooperation developed are based on respect, integrity, and trust.

*Aspects of
using mobile
business
(Chap. 9)*

*Opportunities
and risks
presented by
the
information
society
(Chap. 10)*

1.5 Literary References

Possible business models and forms of cooperation for the electronic market are demonstrated by Tapscott et al. [Tap00]. The arguments for Internet economics come from Zerdick et al. [Zer00]. The book of Brousseau and Curien [Bro07] provides another introduction to the digital economy. Shapiro and Varian [Sha99] describe the strategic conditions for electronic business in their technical book. In a manual on electronic trade by Shaw et al. [Sha00], the most important methods and techniques are made clear using application examples. The work by Timmers [Tim99] illustrates business models for electronic trade with practical examples. The work by Turban et al. [Tur06] and the book of Schneider [Sch07] explain all of the essential aspects of electronic business relations and can serve as textbooks.

*Business
models and
business webs*

*eSarine online
shop*

A deeper introduction to the online shop, eSarine, presented in this book is given in the paper by Werro et al. [WSFM04]. eSarine has also been used in a number of different research projects [Sto06, Mei07]. An open source version of eSarine can be downloaded from the homepage of the authors (<http://diuf.unifr.ch/is/research/esarine/download.php>).

*eBusiness
strategies*

eBusiness strategies have been outlined by a number of authors. The work from Porter is well known and shows that eBusiness must be considered a complement to and not a cannibal of traditional business [Por01]. Interestingly, a chapter from Tapscott argues that elements of Porter's argument are incorrect [Tap01].

*Information
society*

Individual aspects of and developmental trends for the information society are demonstrated in various works. Edvinsson and Malone [Edv97] call for an expansion of the financial key indicators to include an evaluation of the intellectual capital of a company. Gross [Gro94] examines the development and effects of multioption companies from a sociological perspective. Ethical principles for information management are illustrated in the work by Johnson [Joh01].